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FLOATING BODIES MOVABLE IN WATER

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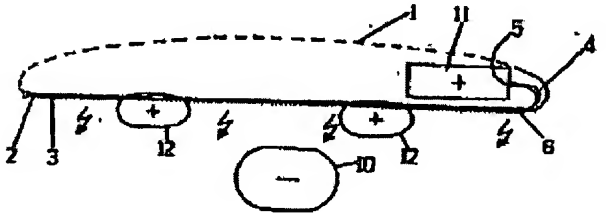
Citations: DE 44 40 105 A1

The following data were taken from the documents submitted by the applicant.

Examination request filed according to Section 44, Patent Law.

With a floating body movable in the water, such as boats, surfboards, and the like, with a design that reduces the resistance to movement in water, so that, as little energy as possible is required therefor, the surfaces that come into contact with the water are provided with a coat of fibers that protrude outwards. Another reduction of friction is attained in that the surface is positively charged, vis-à-vis the negative charge of the water.



The invention concerns floating bodies movable in water, such as boats, surfboards, and the like, with designs that reduce the resistance to movement in the water, so that as little energy as possible is required therefor.

It is known that special measures reduce resistance when floating bodies are moving in water. Thus, the designing of the external form of the floating body such that it is exposed to an optimally low resistance when moving in water is known. The designing of the surfaces as smooth as possible to avoid unnecessary losses due to friction is also known.

Proceeding from these measures, the objective of the invention is to optimize the movement of a floating body in water further and, to a large extent, to reduce the energy requirement for the movement.

The invention consists in providing, for the surface of the floating body that comes into contact with the water, a coat of fibers protruding outwards.

Appropriately, the fibers are laid down and with their free ends, point in a direction opposite the direction of movement.

In an advantageous manner, the fibers are anchored in a fabric that is placed on the surface of the floating body.

A further development of the invention consists in coating the surface of the floating body with an adhesive in which one end of each of the fibers adheres firmly.

In accordance with a refinement of the invention, the adhesive consists of a conductive material, and one or more electric conductors are provided in the adhesive.

In an advantageous manner, the electrical conductor consists of one or more copper bands, placed at a distance from one another.

Appropriately, the electrical conductor is conducted inwards and connected to magnesium as a cathode.

An improved alternative consists in that the electrical conductor is conducted inwards and is provided with a device that supplies an electrical high voltage to the conductor.

A further development to increase the effect consists in that an insulated adhesive area is provided, which separates a smaller adhesive area, which is connected to a plus-pole conductor, from a larger adhesive area, which is connected to a minus-pole conductor.

The invention also makes available a method for the production of a floating body that can move in water. The special features of this method consist in that the surface is coated with a conductive adhesive, that an electrical conductor is embedded into the coating, that fibers are affixed on the coating by flocculation, that the fibers are laid down in the direction turning away from the direction of movement, and that the conductor is conducted into the interior of the floating body with one end, and is connected on this end to magnesium.

Another advantageous embodiment of this method consists in that the conductor is connected on the end conducted into the interior of the floating body to a current source emitting a high voltage.

A refinement of the method consists in that the fibers are laid down by one or more rollers and that a film is unwound by the roller or the rollers, comes to lie on the fibers, and holds them in the layer in which they have been laid, wherein a contact pressure is exerted on the film.

With the aid of embodiment examples and reference to the appended drawings, the invention will be explained in more detail.

The figures show the following:

Figure 1, a floating body with coating in schematic representation;

Figure 2, a floating body, according to Figure 1, with flocculation;

Figure 3, a floating body with laid fibers;

Figure 4, a floating body with a magnesium anode;

Figure 5, a floating body with electrical high-voltage supply;

Figure 6, a floating body with an insulating adhesive area; and

Figure 7, a floating body in an embodiment modified with respect to Figure 6.

Figure 1 schematically shows a floating body, whose outlines are indicated with a broken line. The floating body 1 can represent any shape of a floating body that can move in water, such as boats, surfboards, and the like, and also flippers or diving suits.

The floating body 1 is provided with a coating, which consists of an adhesive, which is, preferably, electrically conductive, on its surface 2, which comes into contact with the water. An electrical conductor 4, which is conducted on one of its ends 5 into the interior of the floater body 1, is placed in the adhesive 3.

Figure 2 shows the floating body 1 with the adhesive 3, onto that fibers 6 adhere. These fibers 6 can be affixed to the adhesive 3 by a flocculation method, so that they adhere firmly at one end to the adhesive, whereas the other end points freely outwards. It is also possible for the fibers to be anchored in a nondepicted fabric, which is placed on the surface 2 of the floating body 1.

Figure 3 shows how the fibers 6 adhering to the adhesive 3 were laid by a roller 7 in such a way that the fibers 6 with their free ends in one direction point to the left in Figure 3, whereas the floating body has an opposite direction of movement in Figure 3 to the right. In order to again present an immediate standing-up of the fibers, several rollers or rollers with an unwinding film being placed on the laid fibers can also be used.

The coating of the surface 2 of the floating body 1 coming into contact with the water and consisting of a layer of the adhesive 3 with the fibers 6 can be provided without an electrical conductor 4 and conductivity of the adhesive 3 and in this embodiment, already has the effect of improved movement in the water. This is based on the fact that vortices do not form on hair ends,

which statically repel the water from the floating body, and, in this way, reduces the friction by the air cushions formed opposite a smooth surface of a body moved in the water.

Figure 4 shows a development of the invention in that the conductor 4 is bound, on its end 5 located in the interior of the floating body 1, as magnesium 8 acting as an anode. The negative [sic; positive] charge of the magnesium 8 appears on the coating of the adhesive 3 and is represented by 9. The charge of the water, which is negative relative to the magnesium 8, brings about an ionization of the water 10, wherein a current is generated from the positively charged coating, consisting of the adhesive 3 and the fibers 6 on the surface 2 of the floating body 1, at least in the beginning, so that the friction of the moving floating body 1 is further reduced in the water.

Figure 5 shows a floating body, corresponding to Figure 4, wherein, however, the end 5 of the conductor 4 is connected to a device 11, which supplies the conductor with a high voltage. The device 11 can be a current producer as a current-regulated voltage source or a battery that releases current with a high voltage with a low current strength. In this way, the positive field on the coating consisting of the adhesive 3 and fibers 6 is reinforced, as is shown by 12, so that the water with the positive charge, reinforced on the surface 2 of the floating body 1, migrates away from the negative pole 10 of the water, wherein the friction is further reduced.

In the case of floating bodies 1 with larger surfaces 2, the conductor 4 can consist of copper bands, which are conducted over the entire surface 2 of the coating with the adhesive 3, and also, parallel copper bands can be arranged, for example, at a distance of approximately 30 cm, in order to produce a strong, electrically positive field on the entire surface 2 or in the coating of the floating body 1, consisting of the adhesive 3 and fibers 6.

Figure 6 shows a development of the invention, in which an insulated adhesive area is provided. This adhesive area 13 is asymmetrically arranged and separates a smaller adhesive area, which is connected to the plus-pole conductor 14, from a larger adhesive area, which is connected to the minus-pole conductor 15.

Figure 7 shows an embodiment with an insulated adhesive area 13, corresponding to Figure 6, wherein instead of one magnesium element 8, a device 11 is provided as a current generator with a regulated voltage source or as a battery.

These measures can be provided on all objects in which movement takes place in water, with ships, surfboards, and also diving suits and flippers.

Reference symbol list

1 Floating body
2 Surface
3 Adhesive
4 Electrical conductor

5 End of the conductor
6 Fibers
7 Roller
8 Magnesium
9 Positive charge
10 Negative charge
11 Device for supply of a voltage
12 Increased negative charge
13 Insulated adhesive area
14 Plus-pole conductor
15 Minus-pole conductor

Claims

1. Floating body that can move in water, such as boats, surfboards, and the like, with a design that reduces the resistance to movement in water, so that as little energy as possible is required therefor, characterized in that the surface (2) of the floating body (1), which comes into contact with the water, is provided with a coat of fibers (6) that protrude outwards.

2. Floating body according to Claim 1, characterized in that the fibers (6) are laid down and with their free ends, point in a direction opposite the direction of movement.

3. Floating body according to Claim 1 or 2, characterized in that the fibers (6) are anchored in a fabric, which is placed on the surface (2) of the floating body.

4. Floating body according to Claim 1 or 2, characterized in that the surface (2) of the floating body is coated with an adhesive (3) in which the fibers (6) adhere firmly with one of their ends.

5. Floating body according to Claim 4, characterized in that the adhesive (3) consists of a conductive material and that one or more electrical conductors (4) are provided in the adhesive (3).

6. Floating body according to Claim 5, characterized in that the electrical conductor (4) is conducted inwards and is connected to magnesium (8) as a cathode.

7. Floating body according to Claim 5, characterized in that the electrical conductor (4) is conducted inwards and is provided with a device (11) that supplies the conductor (4) an electrical high voltage.

8. Floating body according to Claim 6 or 7, characterized in that an insulated adhesive area (13) is provided, which separates a smaller adhesive area, which is connected to a plus-pole conductor (14), from a larger adhesive area, which is connected to a minus-pole conductor (15).

9. Method for the production of a floating body that can move in water according to one of Claims 1, 2, and 4 to 8, characterized in that the surface (2) is coated with a conductive surface (3);

in that an electrical conductor (4) is incorporated into the coating,
in that fibers (6) are affixed by flocculation to the coating;
in that the fibers (6) are laid down in the direction pointing away from the direction of movement; and in that the conductor (4) is conducted, with one end (5), into the interior of the floating body (1) and is bound to magnesium (8) on this end (5).

10. Method according to Claim 9, characterized in that the conductor (1) is connected on the end (5) and conducted into the interior of the floating body (1) to a device (11) that delivers a high voltage.

11. Method according to Claim 9 or 10, characterized in that the fibers (6) are laid down by one or more rollers (7) and that a film is unwound from the roller or the rollers (7), comes to lie on the fibers (6), and holds them in their laid-down position, wherein a contact pressure is exerted on the film.

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Fig.1

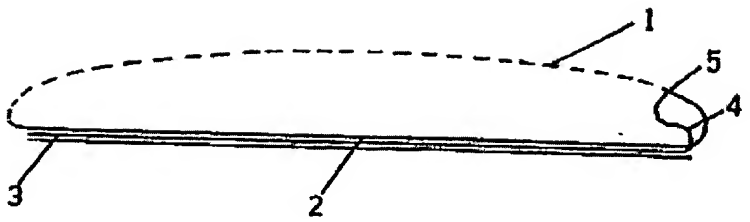

Fig.2

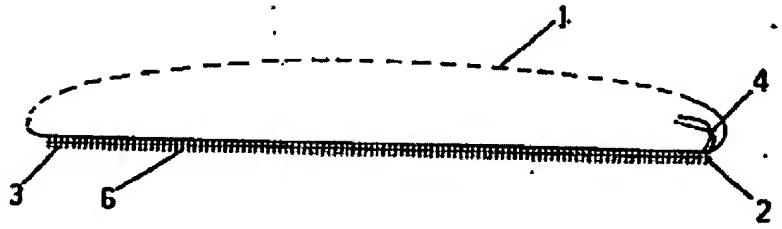

Fig.3

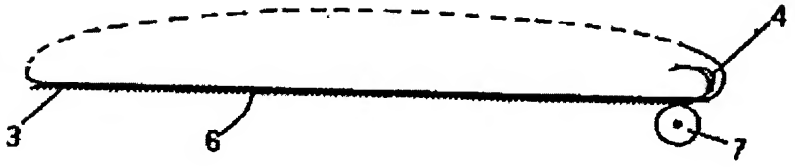

Fig.4

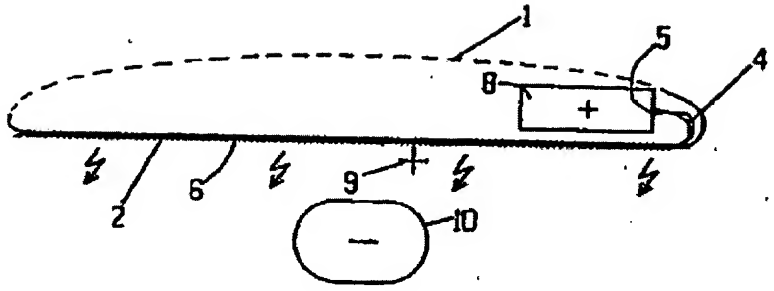

Fig.5

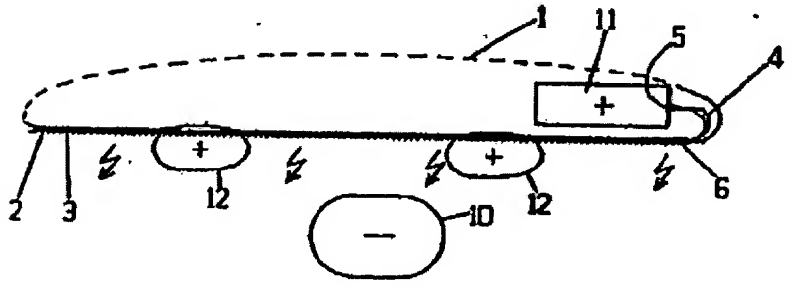

Fig.6

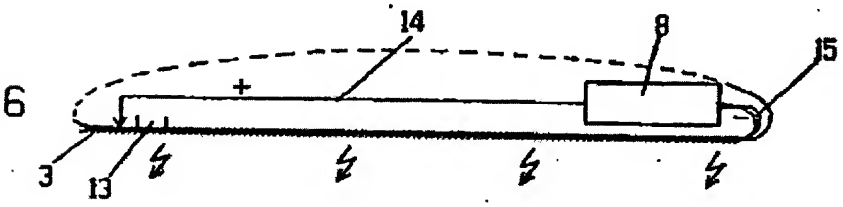

Fig.7